

Amendments to the Claims

Claims 1-8, 11-13, 15-18, and 20 are amended as indicated below.

Claims 9 and 19 are withdrawn as indicated below.

Claim 10 is cancelled without prejudice.

Claims 1-8, 11-18 and 20 are currently pending.

1. (Currently Amended) **A process** for the firm connection of processed semiconductor wafers ~~preferably for connecting system wafers (1) supporting microelectromechanical or electronic structures with cover wafers (2) which, preferably also support electronic structures,~~ wherein, in the case of more than two wafers, the wafers located in a central area of the stack are ~~in particular simultaneously both system wafer and cover wafer,~~ wherein in an operation of a mechanically firm connecting ~~both~~ electrically insulating connections (6, 6a, 6b) and electrically conductive connections (5) are produced between the semiconductor wafers, said process comprising at least the following ~~specific main~~ operations

- applying structured layers of electrically non-conducting and electrically conducting glass paste on respectively one of the two wafer sides to be connected with each other;
- conditioning and premelting of the ~~glasses of glass pastes (5, 6);~~
- geometrical alignment of the wafers to be connected;
- ~~joining, in particular bonding,~~ of the wafers at a processing temperature of the glasses of glass pastes using a mechanical pressure.

2. (Currently Amended) The process according to claim 1, ~~characterized in that~~ wherein the glass pastes, in particular glass solders are applied with a screen printing process.

3. (Currently Amended) The process according to claim 1, ~~characterized in that~~wherein the non-conducting, low-melting glass paste and the electrically conducting glass paste have different conditioning and premelting conditions and that, consequently, the conditioning and premelting are implemented successively in a respectively separate process.

4. (Currently Amended) The process according to claim 1, ~~characterized in that~~wherein the non-conducting, low-melting glass paste and the electrically conducting glass paste have substantially the same processing temperature.

5. (Currently Amended) The process according to claim 1, ~~characterized in that the non-conducting~~wherein the low-melting glass paste and the electrically conducting glass paste have different processing temperatures and these are successively passed in a process.

6. (Currently Amended) The process according to claim 1, ~~and any of claims 2 to 5,~~
~~characterized in that~~wherein at least one of the wafers is electrically connected in an area that is not structured electronically as an (area of the starting material).

7. (Currently Amended) The process according to claim 1, ~~and any of claims 2 to 6,~~
~~characterized in that~~wherein the wafers are electrically connected at specific switching points in the electronically structured areas (3).

8. (Currently Amended) The process according to claim 1, ~~and any of the subsequent claims, characterized in that~~wherein the formation of the connections of the glass pastes takes place at a temperature of less than 450°C.

9. (Withdrawn) The process according to claim 1 and any of the subsequent claims, characterized in that the electric connection of the substrate for SOI wafers is implemented through previously produced openings in a buried oxide layer and in an active silicon layer, in particular the wall areas of the opening of the active silicon layer being provided with an insulating layer (7a) prior to the electric connection.

10. (Cancelled)

11. (Currently Amended) **A process** for the firm connection of processed semiconductor wafers ~~preferably for connecting a~~as system wafer (1) supporting microelectromechanical or electronic structures with a cover wafer (2) ~~which in particular also supports~~ing electronic structures, wherein in an operation of a mechanically firm connecting ~~both electrically insulating connections and electrically conductive connections are produced between the semiconductor wafers, said process comprising at least the following specific main operations~~steps:

- applying a first electrically non-conducting, structured layer and a second electrically conducting layer of respectively one glass paste (5, 6) on at least one of the two wafers (1, 2) to be connected with each other;
- conditioning of the glass pastes ~~(5, 6)~~;
- geometrical alignment of the wafers (1, 2) to be connected;
- joining, ~~in a particular bonding,~~ of the wafers (1, 2) at a processing temperature of the glass pastes using a mechanical pressure.

12. (Currently Amended) The process according to claim 11, wherein the glass pastes (5, 6) ~~in particular~~are glass solders and are applied with a screen printing process.

13. (Currently Amended) The process according to claim 11, wherein the non-conducting, low-melting glass paste (6, 6a) and the electrically conducting glass paste (5) have one of different conditioning and/or premelting conditions and ~~that, consequently,~~ the conditioning ~~and/or~~ premelting of each of the pastes ~~are~~is implemented successively in a ~~respectively~~ separate process.

14. (Original) The process according to claim 11, wherein the non-conducting, low-melting glass paste (5) and the electrically conducting glass paste (6) have substantially the same processing temperature.

15. (Currently Amended) The process according to claim 11, wherein the non-conducting, low-melting glass paste (5) and the electrically conducting glass paste (6) have different processing temperatures and these temperatures are successively passed in the process.

16. (Currently Amended) The process according to claim 11, wherein at least one of the wafers is electrically connected in an area not structured electronically ~~(area of the starting material)~~.

17. (Currently Amended) The process according to claim 11, wherein at least one of the wafers is electrically connected at specific switching points in ~~their~~an electronically structured area(s) ~~(3)~~.

18. (Currently Amended) The process according to claim 11, ~~and any of the subsequent claims~~ wherein the formation of the connections of the glass pastes takes place at a temperature of less than 450°C.

19. (Withdrawn) The process according to claim 11 and any of the subsequent claims, wherein the electric connection of a substrate (11) of an SOI wafer (8) is implemented through at least one previously produced opening in a buried oxide layer (10) and in an active silicon layer (9), in particular the wall areas of the opening in the active silicon layer being provided with an insulating layer (7a) prior to the electric connection (5) with the conducting glass solder.

20. (Currently Amended) **A process** for the firm connection of processed semiconductor wafers ~~preferably for~~ thereby connecting system wafers (1) supporting microelectromechanical or electronic structures (3) with cover wafers (2), ~~which may also support electronic structures wherein in the case of more than two wafers the wafers located in a central area of the stack are simultaneously both system wafer and cover wafer wherein in an operation of a mechanically firm connecting both electrically insulating connections and electrically conducting connections are produced between the semiconductor wafers, characterized by the following specific main operations~~ having the steps

- applying structured layers of electrically non-conducting and electrically conducting glass pastes on respectively one of the two wafer sides to be connected with each other;
- conditioning and premelting of the glasses ~~(5, 6)~~;
- geometrical alignment of the wafers to be connected;

- joining (~~bonding~~) of the wafers at the a processing temperature of the glasses pastes using a mechanical pressure.